

October 13, Wednesday

Morning Session

10:00 – 13:00

Co-Chairs: Yu.P.Malakyan,
A.V.Papoyan

1. Resonant fluorescence of an ensemble of free Rb atoms confined in a gap with thickness below 100 nm.

D. Sarkisyan, T.Varzhapetyan, D.Bloch¹, M.Ducloy¹

Institute for Physical Research of NAS of Armenia, Ashtarak, Armenia;

¹Laboratoire de Physique des Lasers, Institut Galilée, Université Paris Nord, Villetaneuse, France.

2. Conical emission and back fluorescence in dense cesium vapor by femtosecond Ti:Sa laser.

G.Pichler

Institute of Physics, Zagreb, Croatia.

3. Dark-state polaritons: From ultra-slow light and quantum memories to matter wave optics.

M.Fleischhauer

Fachbereich Physik der Technischen Universität Kaiserslautern, Germany.

4. Correlated generation of quantum pulses of light by a medium with coherent atomic memory.

Yu. Malakyan, N.Sisakyan

Institute for Physical Research of NAS of Armenia, Ashtarak, Armenia.

5. Many-particle adiabatic entanglement.

R. Unanyan, M.Fleischhauer¹

Institute for Physical Research of NAS of Armenia, Ashtarak, Armenia;

¹Fachbereich Physik der Technischen Universität Kaiserslautern, Germany.

6. Laser control of the resonant absorption via radio-frequency modulation of atomic transition.

Y.V.Radeonychev, M.D.Tokman, O.Kocharovskaya

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Coffee Break 13:00 - 13:30

Poster Session 2 (posters ## 12 - 24), 13:30 -15:00

Session for Young Scientists

15:00 – 18:00

Co-Chairs: D.H.Sarkisyan,
Kh.V.Nerkararyan

1. Periodically pulsed strong squeezing.

H.Adamyan^{1,2}, J.Bergou³, N.Gevorgyan², G.Kryuchkyan^{1,2}

¹Yerevan State University, Yerevan, Armenia; ²Institute for Physical Research of NAS of Armenia, Ashtarak, Armenia;

³University of New York, New York, USA.

2. Electromagnetically induced transparency based two dimensional light storage and retrieving of shot pulses.

G.V.Nikogosyan

Institute for Physical Research of NAS of Armenia, Ashtarak, Armenia.

3. Formation of the “dark” states and population transfer by means of autoionizing states.

E.A.Gazazian

Institute for Physical Research of NAS of Armenia, Ashtarak, Armenia.

4. Comparison of resonant absorption in Rb sub-micron cell and ordinary cell.

T.Varzhapetyan, A.Sargsyan, A.Nersisyan

Institute for Physical Research of NAS of Armenia, Ashtarak, Armenia.

5. Selective femtosecond excitation of multilevel systems via atomic coherence effects.

N.S.Sisakyan, Yu.P.Malakyan

Institute for Physical Research of NAS of Armenia, Ashtarak, Armenia.

6. The first and second Demkov-Kunike models in cold atom photoassociation.

V.Ghazaryan, R.Sokhoyan, A.Manukyan, A.Ishkhanyan, B.Joulakian¹

Engineering Center of NAS of Armenia, Ashtarak, Armenia;

¹Institut de Physique, Université de Metz, Metz, France.

7. Investigation of orientational optical nonlinearity of nematic liquid crystals into the field of laser pulses.

R.B.Alaverdyan, E.A.Santrosyan, S.Ts.Nersisyan, S.A.Gevorgyan, A.D.Chilingaryan

Yerevan State University, Chair of Optics, Yerevan, Armenia.

12. Stark effect influence on atomic hyper-fine structure levels.

D. Sarkisyan, A. Sarkisyan, A.Papoyan, T.Varzhapetyan, A. Sargsyan¹
Institute for Physical Research of NAS of Armenia, Ashtarak, Armenia;
Yerevan State University, Yerevan, Armenia.

13. Rapid relaxation influence on producing and propagation of dark state polaritons.

G.G.Grigoryan, G.V.Nikogosyan
Institute for Physical Research of NAS of Armenia, Ashtarak, Armenia.

14. Control of temporal pulse shaping by electromagnetically induced transparency: under condition of unequal oscillator.

G.V.Nikogosyan
Institute for Physical Research of NAS of Armenia, Ashtarak, Armenia.

15. Radio-frequency-induced transparency in a neon discharge.

R.A.Akhmedzhanov, L.A.Gushin, I.V.Zelensky, E.A.Kuznetsova, Y.V. Radeonychev
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16. Self-consistent problem of selective reflection.

A.Badalyan, V.Chaltykyan, A.Papoyan, G.G.Grigoryan, S.Shmavonyan, M.E.Movsessian.
Institute for Physical Research of NAS of Armenia, Ashtarak, Armenia.

17. Laser-induced reactions of cesium and rubidium hydride formation.

A.Badalyan, V.Chaltykyan, Yu.Malakyan, S.Shmavonyan, A.Papoyan, M.E.Movsessian
Institute for Physical Research of NAS of Armenia, Ashtarak, Armenia.

18. Three-component superposition states of light in a dissipative medium.

S.T.Gevorgyan, V.O.Chaltykyan
Institute for Physical Research of NAS of Armenia, Ashtarak, Armenia.

19. Two-photon transitions by a femtosecond laser pulses.

A.R.Karapetyan, W.Marine¹
Institute for Physical Research of NAS of Armenia, Ashtarak, Armenia;
¹*Centre de Recherche en Matière Condensée et Nanosciences, Université de la Méditerranée, Marseille, France.*

20. Femtosecond laser based setup for ultra-shot pulses generation, spectroscopy, and electrodynamic studying in terahertz region.

R.A.Akhmedzhanov, A.I.Korytin, A.M.Sergeev, E.V.Suvorov
Institute of Applied Physics of RAN, Nizhny Novgorod, Russia.

21. Redistribution of energy in spectrum of laser pulse of few optical oscillations propagating in nonlinear isotropic media.

D.L.Hovhannisyanyan, S.R.Manucharyan¹
Epygi Labs AM; ¹Virage Logic, Yerevan, Armenia.

22. Thermodynamic of Bose gas in the presence of an external field.

H.S.Babadjanyan, S.A.Babajanyan¹
Engineering Center of NAS of Armenia, Ashtarak, Armenia;
¹*Armenian National Institute of Standards and Quality, Yerevan Armenia.*

23. Rosen-Zener model in cold molecule formation.

A.Ishkhanyan, A.Manukyan, B.Joulakian¹, H.Nakamura²
Engineering Center of NAS of Armenia, Ashtarak, Armenia;
¹*Institut de Physique, Université de Metz, Metz, France;*
²*Institute for Molecular Science, Okazaki, Japan.*

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27. **Fabrication of heterojunctions Si-PbTe by method of pulse laser deposition.**

A.M.Khachatryan
Institute of Radiophysics & Electronics NAS of Armenia, Ashtarak, Armenia.

28. **Optical and fatigue properties of PbZr_xTi_{1-x}O₃ films.**

E.A.Kafadaryan, N.R.Aghamalyan, G.R.Badalyan, A.G.Hayrapetyan, , A.L.Manukyan, S.N.Nikogosyan,
 H.G.Shirinyan, Naijuan Wu¹
Institute for Physical Research of NAS of Armenia, Ashtarak, Armenia;
¹*Texas Center for Superconductivity and Advanced Materials, University of Houston, Houston, Texas, USA.*

29. **Critical current and flux creep in narrow YBCO thin films.**

S.R.Harutyunyan, T.M.Paronyan, A.S.Kuzanyan
Institute for Physical Research of NAS of Armenia, Ashtarak, Armenia.

30. **Low heat-load cryostat electric power delivery.**

S.R.Harutyunyan, G.R.Badalian, V.E.Karapetyan, V.S.Kuzanyan, T.M.Paronyan, A.S.Kuzanyan
Institute for Physical Research of NAS of Armenia, Ashtarak, Armenia.

31. **On the possibility of quantitative estimation of the point defect concentration in Yb-activated gallium garnets.**

A.V.Yeganyan, G.O.Shirinyan, A.G.Petrosyan
Institute for Physical Research of NAS of Armenia, Ashtarak, Armenia.

32. **Preparation of Ce-doped SrHfO₃ ? CaHfO₃ polycrystals and their fluorescence.**

S.M.Sakanyan, G.O.Shirinyan
Institute for Physical Research of NAS of Armenia, Ashtarak, Armenia

Modes of Presentation

The time for oral contributed paper presentation is 25 minutes (20 minutes for presentation and 5 for a discussion time). Data projector and viewgraph projector will be provided.

For the poster sessions each author will be provided with an 80 x 120 cm poster board to display a summary of the paper. Numbers of posters mentioned in the Program correspond to the labeling of poster boards. Poster reports to be displayed on poster board on October 12, by 13:00 p.m. and saved there during the whole Conference.

Authors are requested to stay in the vicinity of their posters board for the duration of the session (approximately 1.5 hours) to answer the questions of attendees.

Sightseeing Program

Coordinators: L.Yu. Dadayan, G.V. Nikogosyan

ECHMIADZIN

October 14, 2004,
9:30 – 12:30

In the year AD 301, Armenia became the first country to adopt Christianity as the official state religion (with the exception of the now vanished kingdom of King Abgar of Edessa). Many of the most interesting sights in the republic are associated with the heritage of the Armenian apostolic church.

Some 20km (12 miles) west of Yerevan, Echmiadzin was the capital of Armenia from AD 180-340 and remains the site of the country's most important cathedral, and home of the church's Supreme Catholicos. The **Cathedral of St Gregory the Illuminator** is believed to stand on the site of a much older church, itself predated by a pagan shrine. The existing 17th-century cathedral is a fine example of Armenian ecclesiastical architecture, with its squat bell tower and elaborately carved dome. The interior of the cathedral was frescoed by Nagash Hovhatanian, a famous Armenian painter, who combined the religious themes with ornamental and decorative elements of folk art. In addition to chalices, vestments and other religious artefacts, the cathedral's treasury contains a spearhead believed to have been used to pierce the side of the crucified Christ, and a chunk of wood from Mount Ararat, claimed to be part of a plank from Noah's Ark. There are a number of other churches at Echmiadzin, including the excavated remains of the seventh-century **Church of St Gregory at Zvartnots**. The building, reputed to have been of extraordinary beauty, was largely destroyed by an earthquake in the tenth century. From the ninth century on began to appear the **Khatchkars**, a most interesting and unusual variety of a memorial stele, they owe their name to the cross, or Khatch, which was carved on the stele, Khatchkars were found to stand by itself in groups of two or three, or sometimes in elaborate architectural compositions. They were generally installed in cemeteries or in the courtyards of churches. Some were inset in the walls of religious buildings.

GARNI and GEGARD

October 14, 2004,
14:00 – 18:00

On the road between Gegard and Yerevan, **Garni** is the site of a temple to the Roman god Mithras. In the first century AD, Nero sent money and slaves to build the temple, as a tribute to the Armenian King Tiridates for his support in fighting off the Parthians. During the centuries following the conversion of the kings of Armenia to Christianity, the temple served as a royal summer palace. Repeated earthquakes have destroyed most of the original structure, but the temple's vertiginous position dominating the valley from a plateau 300m (984ft) above the **Azat River** is breathtakingly beautiful. A ruined ninth-century church stands near the restored temple, and a Roman bathhouse has recently been excavated, revealing a well-preserved mosaic floor.

The **Gegard Monastery**, located 35km (22 miles) east of Yerevan in a steep, rocky valley, is one of Armenia's most dramatic sights. The monks, who still inhabit the monastery, occasionally sacrifice sheep on an open-air stone altar. 'Wishing trees' by the road approaching the site are decorated with coloured scraps of cloth, tied on by pilgrims and travellers hoping their prayers will be answered. A monastery has occupied this site since the fourth century AD, and the existing churches, all magnificently carved, date from the 13th century. Leading from the vaulted chambers of the main church and adjoining *jamatoun*, or meeting room, are two chapels hewn into the rock of the mountain itself. One of these contains a holy spring, the other a burial vault decorated with an ornate coat of arms. Higher up the slope, a passage leads into the mountainside to the 13th-century tomb of Prince Papak and his wife Rouzakan, a structure noted for its extraordinary acoustics.

Proceedings

The full-length papers will be published in the Conference Proceedings. Only papers presented by their authors at the conference and reviewed by the Session Chairs will be considered for publication.

Preparation Instruction

The papers should be typewritten on one side of A4 paper with standard 2.5 cm margins on all sides.

The title should be centered (*capitalized, Times New Roman 12 pt, bold*) at the top of the page. The author's name(s) should be typed (centered, *Times New Roman 12 pt, bold*) after skipping one line, and then on the next line should be written affiliation(s) and complete return address(es) (centered, *Times New Roman 11 pt, italic*).

Abstract must be written in English after skipping one line and should contain a brief, clear statement of conclusion. There is space for approximately 150 word text in Times New Roman 11 pt, italic.

After skipping two lines the body text should be typed in English or Russian (*one spaced, Times New Roman, 12 pt*). The body text should include Introduction, Results, Discussion, Conclusion and References.

All figures and graphs should be reproduced well in black and white, numbered with arabic numerals and captioned. Each must be cited in the text. Lettering and points representing data should be sufficiently large and clearly formed. The number of illustrations required reproduction as half-tone plates should be kept to a minimum. Photographs should be in sharp focus and as rich in contrast as possible. Please remember that Proceedings will not be printed in color.

Tables should be cited in the text, numbered and captioned.

Equations should be typewritten whenever possible and sequentially numbered with arabic numerals in parentheses on the right-hand side of the page.

Literature references should be numbered sequentially with arabic numerals in the square brackets, and listed in numerical order in which they are cited. The rules for citation are as follows:

journal papers – initials and names of all authors, journal in the accepted abbreviation, volume number (bold), first page number and year (in parentheses);

books - initials and names of authors, full title, edition, publisher, place, year, and page number.

Submission

Authors are requested to submit the manuscripts and an electronic version of it to the Conference Program Committee:

Institute for Physical Research, Ashtarak-2, 378410, Armenia.

E-mail: lp@ipr.sci.am

Phone: 374-1-288150

Deadline for submission is February 1, 2005.

Information

Access to the IPR of Armenian NAS. The IPR bus departs from Sayat-Nova str. (in front of A.Khachaturyan Concert Hall) at 8:30, with the following stops: at the crossroad of Orbeli str. and Bagramyan str.; on Halabyan str. (near the Physics Institute).